IN THE CLAIMS:

1   1-3. (CANCELLED)

1   4. (CURRENTLY AMENDED) The method of claim ~~1~~ 24 wherein said indicia of frame

2   type further comprises:

3   a subnet value.

1   5-7. (CANCELLED)

1   8. (CURRENTLY AMENDED) The method of claim ~~1~~ 24 further comprising:

2   deriving a MAC address from said derived VLAN value and forwarding said re-

3   ceived frame to the output port for transmission to a destination having said MAC ad-

4   dress.

1   9. (CANCELLED)

1   10. (CURRENTLY AMENDED) The apparatus as in claim ~~9~~ 26 further comprising:

2   a forwarding engine for forwarding said received frame in response to said de-

3   rived VLAN value and said destination address.

1   11-17. (CANCELLED)

2

18. (PREVIOUSLY PRESENTED) A method of operating a switch for frames in a com-
puter network, comprising:

receiving a frame (received frame) at a port of said switch, said received frame
containing one or more indicia of frame type, said one or more indicia of frame type in-
cluding an indicia of a protocol type;

accessing a port index value associated with the port;

deriving a virtual local area network (derived VLAN) value in response to said
one or more indicia of frame type and said port index value;

accessing a forwarding data base with said derived VLAN value to determine a
destination address; and,

forwarding, in response to said derived VLAN value, said received frame to an
output port for transmission to the destination address.

19. (CURRENTLY AMENDED) An apparatus to forward frames in a computer network,
comprising:

a port to receive a frame (received frame), said port associated with an index
value, said received frame containing one or more indicia of frame type, said one or more
indicia of frame type including an indicia of a protocol type;

a parsing engine to derive a virtual local area network (derived VLAN) value in
response to said one or more indicia of frame type and said index value;

a forwarding database configured to use said derived VLAN value as input and to
yield a destination address as output; and,

an output port to transmit said received frame, in response to said derived VLAN
value, to said destination address.

20. (CURRENTLY AMENDED) An apparatus to forward frames in a computer network,
comprising:

3

3   means for receiving a frame (received frame), said received frame containing one

4   or more indicia of frame type, said one or more indicia of frame type including an indicia

5   of a protocol type;

6   means for accessing an index value associated with the means for receiving a

7   frame;

8   means for deriving a virtual local area network (derived VLAN) value in response

9   to said one or more indicia of frame type and said index value;

10   means for accessing a forwarding database with said derived VLAN value to de-

11   termine a destination address; and,

12   means for forwarding, in response to said derived VLAN value, said received

13   frame to an output port for transmission to the destination.

1   21-23. (CANCELLED)

1   24. (CURRENTLY AMENDED) ~~The method of claim 1 wherein the step of deriving~~

2   ~~further comprises:~~ A method of operating a switch for frames in a computer network,

3   comprising:

4   receiving a frame (received frame) at a port of said switch, said received frame

5   containing one or more indicia of frame type, said one or more indicia of frame type in-

6   cluding an indicia of a protocol type;

7   accessing a virtual local area network (VLAN) value associated with the port;

8   deriving a virtual local area network (derived VLAN) value for use internal to

9   said switch by,

10   generating a protocol code from the indicia of protocol type~~;~~.

4

11   combining the protocol code with the VLAN value to produce a

12   mapping address~;~. and

13   accessing a memory structure with the mapping address to obtain

14   the derived VLAN value~:~;

15   accessing a forwarding database with said derived VLAN value to determine a

16 destination address; and,

17   forwarding, in response to said derived VLAN value, said received frame to an

18 output port for transmission to the destination address.

1 25. (CURRENTLY AMENDED) The method of claim ~1~ 24 wherein the indicia of pro-

2 tocol type indicates an Internet Protocol (IP) protocol type.

1 26. (CURRENTLY AMENDED) ~The apparatus as in claim 9 further comprising:~

2 An apparatus to forward frames in a computer network, comprising;

3   a port to receive a frame (received frame), said port associated with a virtual local

4 area network (VLAN) value, said received frame containing one or more indicia of frame

5 type, said one or more indicia of frame type including an indicia of a protocol type;

6   a protocol mapping table to map the indicia of protocol type to a protocol code;

7 ~and~

8   a parsing engine to derive a virtual local area network (derived VLAN) value,

9 wherein the parsing engine is configured to combine the protocol code with the VLAN

10 value to produce a mapping address and to access a memory structure with the mapping

11 address to obtain the derived VLAN~:~;

12   a forwarding database configured to use said derived VLAN value as an input and

13 to yield a destination address as an output; and

14   an output port to transmit said received frame, in response to said derived VLAN

15 value, to said destination address.

5

27. (CURRENTLY AMENDED) The apparatus as in claim ~~9~~ 26 wherein the indicia of
protocol type indicates an Internet Protocol (IP) protocol type.

28. (PREVIOUSLY PRESENTED) The method of claim 18 wherein the step of deriv-
ing further comprises:

    generating a protocol code from the indicia of protocol type;

    combining the protocol code with the index value to produce a mapping address;
and

    accessing a memory structure with the mapping address to obtain the derived
VLAN.

29. (PREVIOUSLY PRESENTED) The method of claim 18 wherein the indicia of pro-
tocol type indicates an Internet Protocol (IP) protocol type.

30. (PREVIOUSLY PRESENTED) The apparatus as in claim 19 further comprising:

    a protocol mapping table to map the indicia of protocol type to a protocol code;
and

    wherein the parsing engine is configured to combine the protocol code with the
index value to produce a mapping address and to access a memory structure with the
mapping address to obtain the derived VLAN.

31. (PREVIOUSLY PRESENTED) The apparatus as in claim 19 wherein the indicia of
protocol type indicates an Internet Protocol (IP) protocol type.

32. (PREVIOUSLY PRESENTED) A method comprising:

    receiving a frame at a input port, the frame including a protocol type;

3   accessing a virtual local area network (VLAN) value associated with the input

4 port;

5   associating the frame with a protocol code based on the frame's protocol type;

6   concatenating the protocol code together with the VLAN value to produce a map-

7 ping address;

8   applying the mapping address to a memory structure to obtain a derived VLAN

9 value that is based upon both the frame's protocol type and the VLAN value associated

10 with the input port, the derived VLAN value to differ from at least one other derived

11 VLAN value for another frame received on the input port, but having a different protocol

12 type;

13   accessing a forwarding database with the derived VLAN value to determine a des-

14 tination address; and

15   forwarding the frame to an output port for transmission to the destination address.

1 33. (PREVIOUSLY PRESENTED) The method of claim 32 wherein the step of associ-

2 ating further comprises:

3   mapping the protocol type to a protocol code using a protocol mapping table.

1 34. (PREVIOUSLY PRESENTED) The method of claim 32 wherein the frame includes

2 the protocol type in a protocol type field.

1 35. (PREVIOUSLY PRESENTED) The method of claim 32 wherein the protocol type

2 indicates Internet Packet Exchange (IPX) protocol.

1 36. (PREVIOUSLY PRESENTED) An apparatus comprising:

2   an input port to receive a frame, the frame including a protocol type, the input

3 port associated with a virtual local area network (VLAN) value;

7

4   a protocol mapping table to map the frame's protocol type to a protocol code;

5   an engine to concatenate the protocol code together with the VLAN value to pro-

6 duce a mapping address, and to apply the mapping address to a memory structure to ob-

7 tain a derived VLAN value that is based upon both the frame's protocol type and VLAN

8 value associated with the input port, the derived VLAN value to differ from at least one

9 other derived VLAN value for another frame received on the input port, but having a dif-

10 ferent protocol type;

11   a forwarding database to use the derived VLAN value to determine a destination

12 address; and

13   an output port to transmit the frame to the destination address.

1 37. (PREVIOUSLY PRESENTED) The apparatus of claim 36 wherein the frame in-

2 cludes the protocol type in a protocol type field.

1 38. (PREVIOUSLY PRESENTED) The apparatus of claim 36 wherein the protocol type

2 indicates Internet Packet Exchange (IPX) protocol.

1 39. (CURRENTLY AMENDED) A method comprising:

2   receiving a frame at an input port, the frame including a protocol type and a

3 source address;

4   in response to the protocol type indicating a particular protocol type, parsing the

5 source address to obtain a subnet value;

6   applying the subnet value to a memory structure to map the subnet value to a de-

7 rived VLAN value, the derived VLAN value to differ from at least one other derived

8 VLAN value for another frame received on the input port, but having a different subnet

9 value;

10   accessing a forwarding database with the derived VLAN value to determine a des-

11   tination address; and,

12   forwarding the frame to an output port for transmission to the destination address.

1   40. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the particular pro-

2   tocol type is Internet Protocol (IP).

1   41. (PREVIOUSLY PRESENTED) An apparatus comprising:

2   an input port to receive a frame, the frame including a protocol type and a source

3   address;

4   an engine to, in response to the protocol type indicating a particular protocol type,

5   parse the source address to obtain a subnet value, and to apply the subnet value to a

6   memory structure to map the subnet value to a derived VLAN value, the derived VLAN

7   value to differ from at least one other derived VLAN value for another frame received on

8   the input port, but having a different subnet value;

9   a forwarding database to use the derived VLAN value to determine a destination

10   address; and

11   an output port to transmit the frame to the destination address.

1   42. (PREVIOUSLY PRESENTED) The apparatus of claim 41, wherein the particular pro-

2   tocol type is Internet Protocol (IP).